

close as possible to the drum fed inlet nozzle. When economizer bypasses are fitted, a stop-check valve shall be installed in lieu of the aforementioned check valve.

(6) A sentinel valve is not required for vessels constructed after September 30, 1997, and for other vessels to which it has been shown to the satisfaction of the cognizant Officer in Charge, Marine Inspection or the Coast Guard Marine Safety Center, that a sentinel valve is not necessary for the safe operation of the particular boiler.

(c) *Feed water regulators, heaters, and grease extractors.* (1) Where feed water regulators, tubular feed water heaters, and grease extractors are installed, an alternate means of operation with these devices bypassed shall be provided.

(2) Feed water regulators designed with a built-in bypass for emergency use need not be fitted with an external bypass when installed in a feed system provided with an auxiliary feed line. All feed water regulators installed in a unit feed system shall be fitted with an external bypass. Feed water regulators bypasses shall be so arranged that the regular feed valves are in operation while the bypass is in use.

(3) A feed water regulator may be interposed between the stop and stop-check valves in the feed lines.

(d) *Group feed system.* Group feed systems shall be provided with pumps and piping as follows:

(1) Oceangoing and Great Lakes steam vessels, having a feed pump attached to the main propelling unit, shall be provided with at least one independently driven feed pump. Each of these pumps shall be used exclusively for feed purposes and shall be capable of supplying the operating boilers at their normal capacity. In addition, a second independently driven pump, capable of supplying such boilers at 75 percent of their normal capacity, shall be provided for emergency use. This second pump may be used for other purposes.

(2) If two independently driven pumps are provided, each capable of supplying the boilers at their normal required operating capacity, and neither of which is used for other purposes, the third or emergency feed pump is not required.

Where more than two independently driven feed pumps are provided, their aggregate capacity shall not be less than 200 percent of that demanded by the boilers at their required normal operating capacity.

(3) River or harbor steam vessels shall have at least two means for feeding the boilers; one of which shall be an independently driven pump, the other may be an attached pump, an additional independently driven pump, or an injector.

(e) *Unit feed system.* Unit feed systems shall be provided with pumps and piping as follows:

(1) The unit feed system may be used on vessels having two or more boilers. When the unit feed system is employed each boiler shall have its own independently driven main feed pump capable of supplying the boiler at its normal operating capacity. In addition these shall be an auxiliary independently driven feed pump of the same capacity which can be operated in place of and in conjunction with the main feed pump. In vessels with three or more boilers, not more than two boilers may be served by any one auxiliary pump. The auxiliary pump may be so interconnected that any pump can feed any boiler.

(2) In the unit feed system, a separate feed line shall be provided for each boiler from its pumps. A separate auxiliary feed line is not required. The discharge from each pump and the feed supply to each boiler shall be automatically controlled by the level of the water in that boiler. In addition to the automatic control, manual control shall be provided.

(f) *Feedwater.* The feedwater shall be introduced into a boiler as required by § 52.01-105(b) of this subchapter.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 95-028, 62 FR 51201, Sept. 30, 1997; USCG-2002-13058, 67 FR 61278, Sept. 30, 2002]

§ 56.50-35 Condensate pumps.

Two means shall be provided for discharging the condensate from the main condenser, one of which shall be mechanically independent of the main propelling machinery. If one of the independent feed pumps is fitted with a direct suction from the condenser and

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a discharge to the feed tank, it may be accepted as an independent condensate pump. On vessels operating on lakes (including Great Lakes), bays, sounds, or rivers, where provision is made to operate noncondensing, only one condensate unit will be required.

§ 56.50-40 Blowoff piping (replaces 102.2.5(d)).

(a)(1) The requirements for blowoff piping in this section shall be followed in lieu of the requirements in 102.2.5(d) in ANSI-B31.1.

(2) Where blowoff valves are connected to a common discharge from two or more boilers, a nonreturn valve shall be provided in the line from each boiler to prevent accidental blowback in the event the boiler blowoff valve is left open.

(b) Blowoff piping external to the boiler shall be designed for not less than 125 percent of the maximum allowable working pressure of the boiler, or the maximum allowable working pressure of the boiler plus 225 pounds per square inch, whichever is less. When the required blowoff piping design pressure exceeds 100 pounds per square inch gage, the wall thickness of the piping shall not be less than Schedule 80. The value of allowable stress for design purposes shall be selected as described in § 56.07-10(e) at a temperature not below that of saturated steam at the maximum allowable working pressure of the boiler.

(c) Boiler blowoff piping which discharges above the lightest loadline of a vessel shall be arranged so that the discharge is deflected downward.

(d) Valves such as the globe type so designed as to form pockets in which sediment may collect shall not be used for blowoff service.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGD 73-254, 40 FR 40165, Sept. 2, 1975]

§ 56.50-45 Circulating pumps.

(a) A main circulating pump and emergency means for circulating water through the main condenser shall be provided. The emergency means may consist of a connection from an independent power pump fitted between the main circulating pump and the condenser.

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(b) Independent sea suctions shall be provided for the main circulating and the emergency circulating pumps.

(c) A cross connection between the circulating pumps in the case of multiple units will be acceptable in lieu of an independent power pump connection.

(d) On vessels operating on lakes (including Great Lakes), bays, sounds, or rivers, where provision is made to operate noncondensing, only one circulating unit will be required.

§ 56.50-50 Bilge and ballast piping.

(a)(1) All vessels except unmanned barges shall be provided with a satisfactory bilge pumping plant capable of pumping from and draining any watertight compartment except for ballast, oil and water tanks which have acceptable means for filling and emptying independent of the bilge system. The bilge pumping system shall be capable of operation under all practicable conditions after a casualty whether the ship is upright or listed. For this purpose wing suctions will generally be necessary except in narrow compartments at the ends of the vessel where one suction may be sufficient. In compartments of unusual form, additional suctions may be required.

(2) Arrangements shall be made whereby water in the compartments will drain to the suction pipes. Efficient means shall be provided for draining water from all tank tops, other watertight flats and insulated holds. Peak tanks, chain lockers and decks over peak tanks may be drained by eductors, ejectors, or hand pumps. Where piping is led through the forepeak, see § 56.50-1(b).

(3) Where drainage from particular compartments is considered undesirable, the provisions for such drainage may be omitted, provided it can be shown by calculations that the safety of the vessel will not be impaired.

(4) Where the vessel is to carry Class 3 flammable liquids with a flashpoint below 23 °C (74 °F), Class 6, Division 6.1, poisonous liquids, or Class 8 corrosive liquids with a flashpoint below 23 °C (74 °F) as defined in 49 CFR part 173, in enclosed cargo spaces, the bilge-pumping system must be designed to ensure against inadvertent pumping of such